

### **Amendments to the Claims:**

The listing of claims will replace all previous versions, and listings of claims in the application:

### **Listing of Claims:**

The following listing of claims replaces all previous listings or versions thereof:

1-13. (cancelled).

14. (currently amended) A purified human nucleic acid sequence which encodes an alpha subunit of a sodium channel comprising a wherein said nucleic acid sequence selected from the group consisting of:

- (a) the nucleic acid sequence comprises a sequence selected from among of SEQ ID NO:1 SEQ ID NOs: 189, SEQ ID NOs: 190, SEQ ID NOs: 191, or SEQ ID NOs: 192, or a fragment, functional derivative or allelic variant thereof.
- (b) a complement of (a); and
- (c) a nucleic acid sequence having at least 95% identity to the nucleic acid sequence in (a) or (b).

15. (currently amended) The nucleic acid sequence of claim 14, wherein said alpha subunit comprises a nucleic acid sequence comprising SEQ ID NO: 1, ~~SEQ ID NO: 2, SEQ ID NO: 5, SEQ ID NO: 6, SEQ ID NO: 7, SEQ ID NO: 8, SEQ ID NO: 9, SEQ ID NO: 10, SEQ ID NO: 11, SEQ ID NO: 12, SEQ ID NO: 13, SEQ ID NO: 14, SEQ ID NO: 15, SEQ ID NO: 16, SEQ ID NO: 17, SEQ ID NO: 18, SEQ ID NO: 19, SEQ ID NO: 20, SEQ ID NO: 21, SEQ ID NO: 22, SEQ ID NO: 23, SEQ ID NO: 24, SEQ ID NO: 25, SEQ ID NO: 26, SEQ ID NO: 27, SEQ ID NO: 28, SEQ ID NO: 29, SEQ ID NO: 30, SEQ ID NO: 31, and SEQ ID NO: 32,~~ or a

fragment, functional derivative or allelic variant thereof, wherein said fragment, functional derivative or allelic variant retains a biological function of an alpha subunit of a sodium channel.

16. (currently amended) A purified human nucleic acid sequence encoding an alpha subunit of a sodium channel, wherein said nucleic acid encodes an amino acid sequence comprising SEQ ID NO: 3 ~~or SEQ ID NO: 4~~, or a fragment, functional derivative or allelic variant thereof, wherein said fragment, functional derivative or allelic variant retains a biological function of an alpha subunit channel of a sodium channel.

17. (previously presented) A vector comprising any one of the sequences of claim 14.

18. (previously presented) A vector comprising any one of the sequences of claim 15.

19. (previously presented) A vector comprising any one of the sequences of claim 16.

20. (currently amended) An isolated cell harboring a vector of claim 17.

21. (currently amended) An isolated cell harboring a vector of claim 18.

22. (currently amended) An isolated cell harboring a vector of claim 19.

23. (new) The purified nucleic acid of claim 14, wherein said alpha subunit of a sodium channel possesses a sodium channel function.

24. (new) The purified nucleic acid of claim 14, wherein said alpha subunit of a sodium channel is associated with an increased susceptibility to idiopathic generalized epilepsy.

25. (new) The purified nucleic acid of claim 24, wherein said alpha subunit of a sodium channel comprises the following mutation:

- (a) a mutation at position 828 of SEQ ID NO: 1;
- (b) a mutation at position 3978 of SEQ ID NO: 1;
- (c) a mutation at position 5581 of SEQ ID NO: 1; and
- (d) any combination of (a) – (c).

26. (new) The purified nucleic acid of claim 25, wherein said mutation at position 828 is a substitution of A with T.

27. (new) The purified nucleic acid of claim 25, wherein said mutation at position 3978 is a substitution of A with C.

28. (new) The purified nucleic acid of claim of claim 25, wherein said mutation at position 5581 is a substitution of C with A.

29. (new) A purified nucleic acid sequence encoding an alpha subunit of a sodium channel comprising a nucleic acid sequence having at least 119 contiguous bases of SEQ ID NO:1, or a complement thereof.